DOCUMENT RESUME

ED 120 235 TM 005 194

AUTHOR Elmore, Patricia B.; Pohlmann, John T.
TITLE Effect of Teacher, Students, and Class Characteristics on the Evaluation of College Instructors.
PUB DATE Apr 76
NOTE 18p.; Paper presented at the Annual Meeting of the American Educational Research Association (60th, San Francisco, California, April 19-23, 1976)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage
DESCRIPTORS Class Size; College Students; College Teachers; Core Courses; *Courses; Elective Subjects; *Higher Education; Predictor Variables; Statistical Analysis; *Student Characteristics; *Student Evaluation of Teacher Performance; *Teacher Characteristics

ABSTRACT

This study was conducted to determine if student evaluations of faculty are affected by the characteristics of the teacher, the student, and the class. Each instructor was asked to answer questions indicating personal warmth, professorial rank, years of teaching experience, sex, and class size. Students were asked to complete the Instructional Improvement Questionnaire (IIQ). The twenty questions on the IIQ that directly evaluate instructor performance were analyzed. Only the results for the first set of canonical functions are presented. An instructor who received high scores on this canonical function would be rated as encouraging student participation in the course, showing an interest in students, knowing when students understood her/him, available to students, increasing appreciation for the course, and accepting criticism and suggestions. The classes that received high values on this function were small in size, were taught by instructors who rated themselves as warm, and had students that expected high grades. (Author)

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ED120235

Paper Presented to a Meeting of the

American Educational Research Association

San Francisco

April 1976

Effect of Teacher, Student, and Class Characteristics on the Evaluation of College Instructors

Patricia B. Elmore and John T. Pohlmann

Southern Illinois University at Carbondale

TM005 194

Effect of Teacher, Student, and Class

Characteristics on the Evaluation of College Instructors

The purpose of the present study was to investigate the effect of teacher, student, and class characteristics on student evaluations of teaching effectiveness.

Instructor characteristics such as sex, academic rank, teaching experience, and warmth have been studied to determine their effect on student ratings of teaching effectiveness. Although Spencer (Note 1) concluded that there was no meaningful relationship between teacher sex and most Illinois Course Evaluation Questionnaire items, Downie (1952) reported that women faculty compared to men faculty received significantly higher ratings for the extent to which they brought new books and authors into the classroom. Elmore and LaPointe (1974) found that women faculty received significantly higher ratings for "Promptly returned homework and tests" while men faculty received significantly higher ratings on "Spoke understandably."

Three studies (Aleamoni & Graham, 1974; Aleamoni & Yimer, 1973; Scott, Note 2) found no relationship between student ratings and instructor rank while Villano (Note 3) found that associate and full professors received higher ratings than instructors and assistant professors.

Although faculty sex and rank seem to have some influence on student ratings of teacher effectiveness, teacher personality characteristics such as warmth seem to have more impact. Two investigations found

small to moderate correlations between warmth and student ratings of teaching effectiveness (Baird, 1973; Isaacson, McKeachie, & Milholland, 1963). Murray (Note 4) found that warmth correlated .56 with student ratings of teaching effectiveness. Similar findings reported by Costin and Grush (1973) were: The personality trait of personal relations correlated .60 with students' ratings of teacher skill, .55 with student involvement, .59 with teacher support, and -.59 with negative affect in the class. Consistent with these results, Elmore and LaPointe (1975) found that teacher warmth was an important variable influencing student ratings and that self-ratings of warmth interact with faculty sex. Studies by McKeachie, Lin and Mann (1971) and McKeachie and Lin (1971) also provide evidence that teacher warmth is an important variable in teaching effectiveness and that warmth may interact with student sex.

Results from studies examining the effect of student characteristics are as conflicting as the studies related to teacher characteristics. Two studies (Goodhartz, 1948; Isaacson et al., 1964) found no differences between faculty ratings made by male and female students. Bendig (1952) found that women students rated their instructors (men) significantly lower than the male students rated them, Elliott (1950) found that women students tended to give higher ratings in "Presentation of the subject matter" than male students, and Elmore and LaPointe (1974, 1975) found that female students rated instructors higher in "Specified objectives of the course."

The relationship between student ratings of instructors and expected grade in the course was found to be nonexistent in a study by Kennedy

(1975) and positive in three research reports (Pohlmann, 1975; Centra & Linn, Note 5; Christensen & Bourgeois, Note 6). The grade point average and year in school variables have yielded similar conflicting results. Christensen and Bourgeois (Note 6) reported that students whose self-reported grades were either below 2.0 or above 3.5 on a 4 point system rated instructors higher than those whose grade point averages were between these two extremes and that seniors were most critical of their instructors. Frey, Leonard, and Beatty (1975) found that the students' grade point averages did not systematically vary with their ratings; however, more senior students rated instructors more favorably than their less experienced classmates. Centra and Linn (Note 5) reported that lowerclassmen (versus upperclassmen) and students with higher expected grades and high cumulative grade point averages tended to rate the examinations, course quality, and the text higher. Lunney (Note 7) reported that freshmen tended to rate instructors lowest while juniors and seniors rate them highest.

Only one study (Christensen & Bourgeois, Note 6) included the amount of time per week spent on the course in the analysis of student characteristics. Their results revealed a linear trend toward more favorable evaluations as one spends more time on the course outside of class.

Only two class characteristics variables, the class size and the required-elective status of the course, were included in the present study. Class size was found to have no relationship to student ratings by Aleamoni and Graham (1974) and Lunney (Note 7), a slight negative relationship with student ratings by Scott (Note 2), and a positive relationship with student ratings by Villano (Note 3). Gage (1961),

Lovell and Haner (1955), and Pohlmann (1975) found that teachers of elective courses received higher ratings than teachers of required courses.

This study differs from previous studies in that four types of variables were analyzed simultaneously: Teacher-student-class characteristics and student ratings of instructors.

Method

The data for this study were obtained in conjunction with the university-wide student evaluation of instruction program during the 1973-74 academic year. The Southern Illinois University at Carbondale (SIU-C) standard rating form is the Instructional Improvement Questionnaire (IIQ) (Elmore & Pohlmann, 1975). The IIQ is designed to collect data on (a) student and class characteristics, (b) student evaluations of instructors and (c) student evaluations of courses. In addition to the IIQ, information for this study was obtained using a brief faculty information form.

The four types of variables analyzed in this study were: (a) teacher characteristics variables, (b) student characteristics variables, (c) class characteristics variables, and (d) student ratings of instructors. The instructor rating items from the IIQ used in this study appear in Table 1. The student and class characteristics variables used were:

1. Level: Level of course (1=freshman, 2=sophomore, etc.)
2. GPA: Mean grade point average of students enrolled in the course
3. Outside Study Hours: Mean number of hours per week reported in study activity related to the course

4. General Rating: The average rating of the general quality of instruction at Southern Illinois University at Carbondale
5. Expected Grade: The average grade expected by students in the class
6. Year in School: The average year in school of students in the class
7. Sex: The percent of students in the class that were female
8. Elective: The percent of students in the class taking the course as an elective
9. Size: Number of students enrolled in the course

A brief faculty information form was used to obtain the teacher characteristics variables analyzed in this study. They were:

1. Sex (0=male, 1=female)
2. Rank (1=lecturer, 2=instructor, 3=assistant professor, 4=associate professor, and 5=professor)
3. Years of teaching experience (1=one year or less, 2=two to five years, 3=six to ten years, 4=eleven to fifteen years, and 5=sixteen years or more)
4. Self-rating of personal warmth (1=very, 2=above average, 3=moderately, 4=somewhat, and 5=not at all)
5. Self-rating of primary teaching interest (1=the student, 0=course content)

The sample of classes used in this study included courses at all levels, from all colleges within the University, taught by instructors at each of the teaching ranks, with a range of class sizes from small (less than 10 students) to large (more than 100 students).

Results

The unit of analysis for this study was the class. The student ratings of instruction consisted of mean item responses. The student biographic data and the faculty information data were summarized for each class as described in the Method section of this paper. The number of classes used in the analysis was 174.

The analysis of the data is presented in two parts. Table 1 contains the correlations between the mean ratings on the 20 IIQ instructor evaluation items and the teacher-student-class characteristics variables. Table 2 contains the results of a canonical correlation analysis which related the teacher-student-class characteristics variables to the 20 IIQ rating items.

Canonical analysis was selected for this study because of its appropriateness in settings where the researcher wishes to examine the relationship between two sets of variables. Canonical analysis approches this analysis problem by solving for two sets of weighting coefficients, which when applied to each set of variables will form composite variables that maximally correlate. Canonical analysis can solve for multiple orthogonal sets of weighting coefficients, each set indicative of an independent pattern of relationships between the variable sets. The computer program used to conduct the analysis was program CANONA by Veldman (1967).

The intercorrelation results presented in Table 1 indicated that

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Insert Table 1 about here
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the teacher-student-class characteristics variables do not correlate highly

with student ratings of instruction. The great majority of the correlations are low and not significantly different from 0 ($\alpha = .01$). This indicates that a rather large portion of the variance in student evaluations of instructors is attributable to sources other than those examined in this study.

Since the Pearson correlation is not sensitive to curvilinear relationships between variables, a number of one-way analyses of variance were calculated to determine eta square values. The eta square statistics, which assess the maximum degree of non-linear relationship, were compared to the r^2 values derived from Table 1. This analysis indicated that the relationships reported in this analysis could be reported assuming linearity with no loss of meaning or changes in the interpretation.

Even given the generally small magnitude of the correlations in Table 1, a pattern of relationships emerged. The most potent student characteristics variable was the grade expected by students in a class, suggesting that the grading leniency of the instructor is a potent factor in student evaluations. The general rating of instruction at SIU-C was the next most important variable in terms of its relationship to student ratings. This finding hints at the presence of a rating leniency factor in student ratings, since all students in all classes were rating the same institution, SIU-C.

The items from the IIQ also varied in their relations to the teacher-student-class characteristics variables examined. Items reflecting a student orientation factor (items 16 and 19) tended to correlate highest with the teacher-student-class characteristics variables.

The results of the canonical analysis appear in Table 2. Only the results for the first set of canonical functions is presented, because

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Insert Table 2 about here
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it was the only set that had a redundancy coefficient (Stewart & Love, 1968) associated with the student rating item battery that was greater than .10. The redundancy coefficient measures the proportion of variance in a battery of variables explained by the canonical function. In this respect, the redundancy coefficient is analogous to the percent of trace statistic traditionally reported in factor analytic studies.

The largest canonical correlation, the one reported in Table 2, was .83, and was significantly greater than zero ($\alpha = .01$). The figures presented in Table 2 are the correlations, or loadings, of the original variables with the canonical functions. These loadings amplified the relationships that were cursorily noted earlier by inspection of the R matrix in Table 1.

The loadings associated with the rating variables indicated that the rating items that were most predictable from the teacher-student-class characteristics variables were those which reflected the degree of teacher-student interaction. An instructor obtaining high scores on this canonical function would be rated as encouraging student participation in the course, showing an interest in students, knowing when students understood her/him, available to students, increasing appreciation for the course, and accepting criticism and suggestions.

The loading associated with the teacher-student-class characteristics variables indicated that the most potent student variable was the mean expected grade for the class. Other variables which received high loadings

on this canonical function were class size and instructor warmth. Hence the classes receiving high values on this function were small in size, were taught by instructors who rated themselves as warm, and had students that expected high grades.

Discussion

Three teacher-student-class characteristics variables were found to be important factors in student ratings of teacher effectiveness. They were:

1. Expected Grade in the Course. The findings of the present study were consistent with results reported by Pohlmann (1975), Centra and Linn (Note 5), and Christensen and Bourgeois (Note 6) indicating a positive relationship between student ratings of instructors and expected grade in the course.

2. Class Size. Small classes received higher ratings than large classes in this study as well as in the investigation by Scott (Note 2).

3. Teacher Warmth. Consistent with previous findings (Elmore & LaPointe, 1975; Baird, 1973; Costin & Grush, 1973; Isaacson, McKeachie, & Milholland, 1963; Murray, Note 4), teacher warmth was an important variable influencing student ratings of teacher effectiveness.

The IIQ items that were most predictable from the teacher-student characteristics variables were (a) "Encouraged student participation," (b) "Showed an interest in students," (c) "Knew if students understood her/him," (d) "Was available outside of class," (e) "Increased your appreciation for the subject" and (f) "Accepted criticism and suggestions." These items measure the degree of teacher-student interaction or the degree of student orientation exhibited by an instructor.

In general, it was found that warm instructors teaching small classes with students that expected high grades received higher teacher effectiveness ratings on items measuring the degree of the instructor's orientation toward students than on items measuring other aspects of teaching effectiveness such as course difficulty and presentation of material. These results seem to offer some information concerning the discriminant validity of student ratings of teacher effectiveness.

Further research is needed to determine the variables that affect student ratings of college instructors. The teacher-student-class characteristics variables included in this study do not correlate highly with student ratings; therefore, a large portion of the variance in student evaluations of college instructors is attributable to sources other than those examined in this study.

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Table 1

Correlations Between Student Ratings

and Teacher-Student-Class Characteristics Variables

(N=174 courses)

Item Statements	Course Level	GPA	Study Hours	Ratings of Instruction at SIU	Expected Grade	Student Class	Percent Female	Percent Elective	Class Size	Teaching Experience	Instructor Warmth	Instructor Rank	Instructor Sex[a]	Instructor Interest[b]
1 Prepared for class	11	09	16	20	13	14	13	-07	-05	07	02	03	14	11
2 Made clear assignments	09	09	17	23	12	08	11	-11	-13	04	06	01	12	-00
3 Set clear standards for grading	00	03	11	27	10	01	16	-25	04	-14	03	-21	25	-06
4 Graded fairly	16	21	08	29	30	19	21	-04	-20	00	14	-11	20	11
5 Knew if students understood her/him	19	21	10	25	45	25	28	04	-23	05	27	-00	24	28
6 Spoke understandably	18	18	08	18	34	22	24	01	-12	09	18	04	16	24
7 Answered impromptu questions satisfactorily	18	15	09	27	32	23	15	09	-12	05	15	06	12	20
8 Showed an interest in the course	25	21	17	25	31	27	16	04	-12	15	19	04	19	19
9 Gave several examples to explain complex ideas	05	05	11	35	21	06	22	01	-01	13	17	05	17	16
10 Accepted criticism and suggestions	34	24	16	17	39	37	22	07	-17	08	13	-07	21	13
11 Increased your appreciation for the subject	28	21	23	28	40	30	22	13	-17	19	25	00	10	18
12 Was dependable in holding class as scheduled	12	08	16	06	18	12	16	-13	-01	06	07	-01	05	11
13 Specified objectives of the course	16	17	22	31	22	16	29	-14	-11	04	10	-03	28	11
14 Achieved the specified objectives of the course	11	12	18	33	31	12	27	-12	-18	04	14	-06	29	16
15 Promptly returned homework and tests	04	11	18	20	02	10	03	-13	-01	05	18	04	15	04
16 Showed an interest in students	27	26	16	26	49	32	16	06	-28	07	37	-06	22	27
17 Knew his subject matter	16	12	17	26	11	19	11	04	-04	20	09	15	11	13
18 Was available outside of class	27	37	15	26	36	31	12	06	-33	07	23	-01	10	17
19 Encouraged student participation	33	32	09	20	49	38	22	08	-33	12	32	-01	19	30
20 In general, taught the class effectively	17	16	17	30	31	19	21	03	-17	10	21	01	20	22

Note. Decimal points have been omitted to conserve space.

[a] 1=female, 0=male

[b] 1=student, 0=content

Table 2

Loadings of Original Variables on the

First Pair of Canonical Variables

Canonical Correlation Coefficient = .83

IIQ Items (see Table 1 for their description)		Teacher-Student-Class Characteristics Variables	
Item Number	Loading	Variable	Loading
1	.19	Course Level	.39
2	.19	Mean Class GPA	.43
3	.13	Mean Study Hours per Week	.04
4	.44	General Rating of Instruction at SIU	.17
5	.65	Mean Expected Grade in Class	.81
6	.47	Mean Student Year in School	.46
7	.43	Percent Females in Class	.22
8	.45	Percent Taking Course as an Elective	.18
9	.30	Class Size	-.56
10	.51	Instructor's Years of Teaching Experience	.05
11	.56	Instructor's Self-Rating of Personal Warmth	.55
12	.23	Instructor's Rank (1=lecturer, . . . 5=professor)	-.15
13	.33	Sex of Instructor (0=male,1=female)	.21
14	.44	Instructor's Self Rating of Interest (0=content of course, 1=students)	.43
15	.15		
16	.75		
17	.21		
18	.57		
19	.76		
20	.48		
Redundancy Coefficient = .14		Redundancy Coefficient = .11	